REMARKS

1. Summary of the Office Action Mailed July 16, 2007

The Examiner rejected claims 1-8, 22-25, 28-30, and 34-39 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. In addition, the Examiner rejected claims 1, 3, 5, 6, and 19 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. patent No. 6,018,617 (Sweitzer). In addition, the Examiner rejected claim 2 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sweitzer in view of U.S. Patent No. 6,341,959 (Wen). In addition, the Examiner rejected claim 4 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sweitzer in view of U.S. Patent No. 5,902,114 (Erickson). In addition, the Examiner rejected claims 7-10, 12, 13, 20-33, and 40 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sweitzer in view of U.S. Patent No. 5,597,312 (Bloom). In addition, the Examiner rejected claim 11 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sweitzer in view Bloom, and in further view of Erickson. Finally, the Examiner rejected claims 14-19, 34-39, and 41 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sweitzer in view of Bloom, and in further view of Wen.

2. Status of the Claims

Claims 1-6 and 19 have been canceled. Claims 10, 20, 21, 35, and 41 have been amended to more distinctly claim the subject matter. Support for the amendments can be found throughout the specification and claims as filed, and in at least paragraphs [0060]-[0072], and the figures referred to therein. No new matter has been added. Claims 7-18 and 20-41 are currently pending.

3. Responses to the Rejections

3.1 The Claims are Directed to Statutory Subject Matter under 35 U.S.C. § 101

The Examiner rejected claims 7-18, 22-25, 28-30, and 34-39 as allegedly being directed to non-statutory subject matter. Specifically, the Examiner stated that "[t]he claims fail to produce a tangible effect" because they "do not cause an output or other indication to a user that something has occurred." Applicants respectfully disagree with the Examiner's position.

The Examiner bears the burden of establishing a *prima facie* case that as a whole, a claimed invention is directed only to an abstract idea or a manipulation of ideas. *See* MPEP §

2106(IV)(B). A claim should only be rejected under 35 U.S.C. § 101 where it lacks any practical application in the technical arts. *Id.* In order to be statutory subject matter, the claimed invention must produce a "useful, concrete and tangible result." *State Street Bank & Trust Co. v. Signature Financial Group, Inc.,* 149 F.3d 1368, 1374 (Fed. Cir. 1998) ("[T]he mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a 'useful, concrete and tangible result.'")

In rejecting the above claims, the Examiner misconstrued the meaning of a "tangible result." Rather than needing to "cause an output or other indication to a user that something has occurred," an invention is sufficiently tangible if it produces a "real-world result." MPEP § 2106(IV)(C)(2)(b). This broader interpretation of "tangible" is in line with the holding of the Court of Appeals for the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352. In *AT&T*, the Court of Appeals for the Federal Circuit specifically held that a claim having the final result of "generating a message record" fell "comfortably within the broad scope of patentable subject matter under § 101." *Id.* at 1361. Accordingly, the generation of an item is clearly patentable subject matter under § 101.

Claims 7-18, 22-25, 28-30, and 34-39 are directed to statutory subject matter under § 101 for at least the reason that they produce a useful, concrete, and tangible result. Specifically, the processes of independent claims 7, 10, 22, and 35 result in the generation of an assessment item. The generation of an assessment item, like the generation of a message record, is a real-world result that renders the claimed invention patentable under § 101.

Dependent claims 8-18, 23-25, 28-30, 34, and 36-39 depend from independent claims 7, 10, 22, and 35 and also result in the generation of an assessment item. Thus, for at least the reason that claims 7-18, 22-25, 28-30, and 34-39 show a practical application, Applicants submit that these claims are directed to patentable subject matter. Accordingly, Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. § 101.

3.2 The 35 U.S.C. § 102(b) Rejections are Moot

Applicants have canceled claims 1, 3, 5, 6, and 19. Accordingly, the Examiner's arguments and rejection of these claims under 35 U.S.C. § 102(b) are moot.

3.3 The Examiner has Failed to Establish a **Prima Facie** *Case of Obviousness under 35 U.S.C. § 103(a).*

Where unpatentability is asserted in view of the combination of prior art references, all the claim limitations must be taught or suggested by the prior art references in order to establish a *prima facie* case of obviousness. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (C.C.P.A. 1974). Further, even if all claim limitations can be found in the prior art, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR International Co. v. Teleflex Inc.*, 82 USPQ.2d 1385, 1396 (2007). As the Supreme Court noted in *KSR International Co. v. Teleflex Inc.*, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Accordingly, to establish a *prima facie* case of obviousness, the Examiner must show that all claim limitations are taught or suggested in the prior art, and must otherwise explain why the differences between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.

Although the Examiner rejected claims 7-18 and 20-41 as allegedly being unpatentable over a variety of references, the Examiner primarily relied on the disclosures of the Sweitzer and Bloom references. However, these references do not teach what the Examiner asserted, and the Examiner repeatedly failed to provide adequate support for these assertions.

First, the Examiner has incorrectly interpreted Sweitzer as disclosing a "word problem generator." (*See, e.g.,* Office Action at pages 4, 6-8). The passage the Examiner cites to support this language is inconsistent with the generation of word problems. On page 4 of the Office Action, the Examiner suggests that the "system for formatting and printing an examination having one or more mathematical expressions" supposedly supports the generation of a mathematical word problem. However, the terms "mathematical expression" and "mathematical word problem" are not synonymous. Figure 3 of Sweitzer provides an exemplary mathematical expression, which is clearly different from what would be considered a "word problem" in the art. Rather than dealing with word problems, Sweitzer is concerned solely with formatting mathematical expressions, and its disclosure is limited to such formatting. (*See* Sweitzer, 3:9-11, "[s]ince the present invention is directed toward the creation of math tests, mathematical

expressions are formatted in the context of test problems). Accordingly, Sweitzer does not disclose – either explicitly or implicitly – any form of a "word problem generator."

Second, the Examiner has misinterpreted the nature of such terms as "grammar" and "syntax" as used in Bloom, leading to an incorrect interpretation of the teachings of Bloom. The Examiner stated that it would have been obvious to modify Sweizer "using the grammar node relationships as taught by Bloom, in order to train a student using natural language." (Office Action at page 6). The Examiner also stated that "Bloom's conversations are taught to be syntactically-correct sequences," allegedly giving rise to a logical schema "having info pertaining to the syntax and vocabulary used to generate natural language." (Office Action at page 7). From these statements it is apparent that the Examiner has incorrectly interpreted Bloom's use of these terms as referring to natural language rules and vocabulary.

Bloom does not use the terms "grammar" or "syntax" in their usual context or as pertaining to rules governing the use of natural language; rather, Bloom uses these and related terms are used to describe layers and aspects of a so-called "knowledge base." (*See* Bloom, 15:1-16). Bloom uses the term "grammar" throughout as referring to a "discourse grammar," which is described as "a representation of the complete collection of possible customer/CSR conversations that the method and system of the present invention will support." (Bloom, 15:23-25). The "conversations" that Bloom refers to are described as "syntactically correct sequences through discourse grammar made up of sequences of situation-action rules." (Bloom, 15:44-47). Bloom further offers this summary of these terms: "[f]rom the foregoing, it is apparent that a grammar is a set of conversations in an AND/OR tree, where nodes are situation-action pairs, and branches are different possibilities based on the customer situation…" It is clear from Bloom's descriptions and usage that these terms have no relationship to "the syntax and vocabulary used to generate natural language." Accordingly, when discussing the teachings of Bloom it is improper to give the terms "grammar," "syntax," "conversation" and other related terms such meanings that correspond to natural language rules and vocabulary. It is also incorrect to conclude that that Bloom is in any way related to the "[training of] a student using natural language."

A correct understanding of the teachings of the Sweitzer and Bloom shows that these references fail to disclose the claim limitations of the above claims. Accordingly, by incorrectly interpreting the prior art references and their scope, the Examiner has substantively erred in his

factual findings. Thus, the Examiner has therefore failed to establish a *prima facie* case of obviousness for the above claims, as further discussed below with respect to specific claims.

Claims 7-9 and 20:

Neither Sweitzer nor Bloom – alone or in combination – teaches all of the claim limitations of claims 7 or 20. The grammar builder of Bloom to which the Examiner refers enables the linking of grammar "nodes." (Bloom, 19:40-45). As described by Bloom, these "nodes" are simply "reusable portions of conversations that can appear in several different conversations scenarios." (Bloom, 15:54-57). These nodes are then combined to generate "conversations." (Bloom, 16:14-30, "Conversations or scenarios can be constructed by combining all of the individual nodes along any one branch (from left to right) of the discourse grammar"). As reusable portions of conversations, the nodes of Bloom are clearly not the same as the variables of the claimed invention. Also, the "conversations" of Bloom are not the same as the assessment item of the claimed invention. Thus, Bloom fails to teach "determining one or more relationships between at least two of the variables" and "generating an assessment item based on the one or more relationships." As conceded by the Examiner, Sweitzer also fails to teach these limitations. (Office Action at page 6).

Because the combination of Sweitzer and Bloom fails to teach the limitations of independent claims 7 and 20, these claims are patentable over the cited art. Further, because claims 8 and 9 depend from independent claim 1, Applicants submit that these claims are also patentable over the cited art. *See* MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Thus, Applicants respectfully request that the rejection of claims 7-9 and 20 under 35 U.S.C. § 103 be withdrawn.

Claims 10-18 and 21

Regarding the rejection of independent claims 10 and 21 in view of Sweitzer and Bloom, Applicants re-assert their arguments above with respect to claims 7-9 and 20. Further, the combination of Sweitzer and Bloom also fails to teach specific limitations in claims 10 and 21.

The Examiner states that "Bloom teaches action definitions used in the grammar builder, which are linked in a relationship by the author using the grammar builder." However, the "action definitions" of Bloom are not the same as the "events" of the claimed invention for at

least the reason that Bloom does not describe the limitation wherein variables are assigned to the event. Moreover, even if it is assumed that "action definitions" are equivalent to "events," the claimed invention recites that the "relationship" exists between variables assigned to an event, not the events themselves. Accordingly, the linking of actions in Bloom is not the same as determining a relationship between variables assigned to an event. Thus, Bloom fails to teach at least the limitations "wherein the format of the assessment item comprises at least one event," and "wherein each variable is assigned to an event." As conceded by the Examiner, Sweitzer also fails to teach these limitations. (Office Action at page 6-7).

Because the combination of Sweitzer and Bloom fails to teach the limitations of independent claims 10 and 21, these claims are patentable over the cited art. Further, because claims 11-18 depend from independent claim 10, Applicants submit that these claims are also patentable over the cited art. Thus, Applicants respectfully request that the rejection of claims 10-18 and 21 under 35 U.S.C. § 103 be withdrawn.

Claims 22-34 and 40

Neither Sweitzer nor Bloom – alone or in combination – teaches all of the claim limitations of claims 22 or 40. First, the "print engine" of Sweitzer is concerned primarily with the pagination and placement of problems and annotations on the output. (Sweitzer, 18:33-40,63-65). The "print engine" of Sweitzer does not result in the generation of a document structure, and particularly does not result in a document structure that gives rise to a logical schema that is used to generate an assessment item. Thus, Sweitzer fails to teach at least the step of "generating a document structure based on the one or more input parameters."

Second, as described at length above, Bloom's "mapping of conversations" does not represent a logical schema, particularly one having information pertaining to the syntax and vocabulary used to generate natural language. (Office Action at page 7). Therefore, Bloom fails to teach at least the step of "producing a logical schema using the document structure" or "generating an assessment item based on the logical schema." As conceded by the Examiner Sweitzer also fails to teach a logical schema (Office Action at page 7).

Finally, in view of Sweitzer, Bloom, and the Examiner's comments, it is not apparent that producing a logical schema from the output of the print engine is even possible. In view of the above general remarks regarding the Sweitzer and Bloom references, the Examiner's statement

that "it would have been obvious … to have used the mental models as described by Bloom, in the word problem generator of Sweitzer, in order to reflect natural language in the word problem" is in error and lacking in factual support. Accordingly, it would not have been obvious to one skilled in the art that the "print engine" of Bloom could be adapted to produce a "mapping of conversations" as in Bloom.

Because the combination of Sweitzer and Bloom fails to teach the limitations of independent claims 22 and 40, these claims are patentable over the cited art. Further, because claims 23-34 depend from independent claim 22, Applicants submit that these claims are also patentable over the cited art. Thus, Applicants respectfully request that the rejection of claims 22-34 and 40 under 35 U.S.C. § 103 be withdrawn.

Claims 35-39 and 41

Neither Sweitzer nor Bloom – alone or in combination – teaches all of the claim limitations of independent claims 35 and 41. The Examiner states that Bloom teaches "selecting semantic frames," apparently because Bloom allegedly discusses "hierarchical patterns of vocabulary." (Office Action at page 8). However, the portion of Bloom that the Examiner cites to support this statement only generally discusses that "grammar is a set of conversations," and has nothing to do with "hierarchical patterns of vocabulary." (Bloom, 15:63-16:2). Bloom also does not otherwise teach "selecting semantic frames" as in the claimed invention. Therefore, Bloom fails to teach at least "defining one or more semantic frames," as in claims 35 and 41. As conceded by the Examiner, Sweitzer also fails to teach this limitation. (Office Action at page 8).

Because the combination of Sweitzer and Bloom fails to teach the limitations of independent claims 35 and 41, these claims are patentable over the cited art. Further, because claims 36-39 depend from independent claim 35, Applicants submit that these claims are also patentable over the cited art. Thus, Applicants respectfully request that the rejection of claims 35-39 and 41 under 35 U.S.C. § 103 be withdrawn.

4. Conclusion

Applicants submit that all claims are in condition for allowance and respectfully requests notice to that effect. Should the Examiner wish to discuss the case with the undersigned, the Examiner is invited to call the undersigned at 312-701-8298.

5. Fee Authorization

The Commissioner is hereby authorized to charge any additional fees (or credit any overpayment) associated with this communication to our Deposit Account No. 13-0019. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to the above-listed Deposit Account.

Respectfully submitted,

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